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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/552,678

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22045

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EXAMINER

OJURONGBE, OLATUNDE S

ART UNIT

PAPER NUMBER

1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/552,678	Applicant(s) BACHER ET AL.	
	Examiner OLATUNDE S. OJURONGBE	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed on 11/05/2008 has been entered. Claims 8-17 are pending in the application.

Specification

2. The disclosure is objected to because of the following informalities:

The examiner notes that in the present disclosure, viscosities are cited without the corresponding temperature at which the viscosities were measured; an example is 2 to 50 mPas, found on page 2, lines 37-38. Since viscosity is a temperature dependent entity, the corresponding temperature at which a viscosity is measured should be cited in the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S.Code not included in this action can be found in a prior office action.

4. **Claims 8-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Uwe et al (DE 3727078)** in view of **Maruyama et al (US 4,617,239)** in further view of **Tschirner et al (US 6,211,289)**.

Regarding **claims 8 and 9**, Uwe et al teaches a silicone release on a substrate characterized in that the substrate is first treated with a primer having little release effect on which a silicone release is applied (abstract). This teaches applying a primer to a substrate and then applying a silicone release coating over the primer.

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Uwe et al further teaches examples of primer of the invention to include polyvinyl alcohol (col.3, lines 1-8).

Uwe et al does not teach a process for the preparation of release films and coatings on a substrate by applying a primer to the substrate and then applying a silicone release coating, comprising applying a primer of the instant claim.

Maruyama et al teaches a method of coating paper comprising applying to paper a silicon-containing modified polyvinyl alcohol agent or its saponification product (abstract).

Maruyama et al further teaches that the silicon-containing modified PVA should be preferably produced by saponifying a copolymer of a vinyl ester and a silicon-containing olefinic unsaturated monomer (col.7, lines 9-12) and that the content of silicon in the silicon-containing modified PVA is usually from 0.01 to 10 mol% and the degree of saponification is usually 70 to 100 mol% (col.7, line 65-co1.8, line 5).

Maruyama et al further teaches that when applied to paper, the paper coating agent of the invention greatly improves the surface properties of paper, such as surface strength and barrier properties and that the agent does not penetrate into paper but forms a firm uniform film on the surface layer of paper (col.9, lines 8-25).

Since both inventions of Uwe et al and Maruyama et al encompass paper coating, and Uwe et al teaches polyvinyl alcohol as a primer, motivated by the taught advantages of the silicon-containing modified polyvinyl alcohol of Maruyama et al, it would have been obvious to one of ordinary skill in the art to have incorporated the silicon-containing modified polyvinyl alcohol of Maruyama et al with the polyvinyl alcohol of Uwe et al as

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the primer of the invention of Uwe et al by routine experimentation with an expectation of success.

Modified Uwe et al does not teach the primer comprising at least one silane-containing polyvinyl alcohol derived from fully or partly hydrolyzed vinyl ester copolymers having a degree of hydrolysis of 75 to 100 mol% obtained by free-radical polymerization of the instant claim.

Tschirner et al teaches that aqueous solutions of copolymeric polyvinyl alcohols prepared by saponification of copolymers containing vinyl acetate and 1-alkylvinyl acetate units have an unlimited shelf life at room temperature (col.2, lines 7-9) and further teaches 1-alkylvinyl alcohol/vinyl alcohol and 1-alkylvinyl acetate/vinyl acetate in a weight ratio of from 1/99 to 40/60 (col.2, lines 41-44) and that suitable alkyl groups are C₁-C₄ radicals (col.2, line 26). Motivated by the advantages of copolymeric polyvinyl alcohols formed from 1-alkylvinyl acetate/vinyl acetate as taught by Tschirner et al, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the 1-alkylvinyl acetate/vinyl acetate of Tschirner et al in the saponification reaction of modified Uwe et al (see Maruyama et al, col.7, lines 9-12), by routine experimentation with an expectation of success.

Degree of saponification is used interchangeably with degree of hydrolysis in the art.

Though modified Uwe et al does not teach the primer comprising at least one silane-containing polyvinyl alcohol derived from fully or partly hydrolyzed vinyl ester copolymers having a degree of hydrolysis of 75 to 100 mol% obtained by free-radical polymerization of (a), (b) (c) and hydrolyzing the resultant polymer of the instant claim,

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the examiner notes that this limitation is a product-by-process limitation, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

Regarding **claim 10**, modified Uwe et al teaches all the claim limitations as set forth above and further teaches suitable alkyl groups such as methyl, ethyl and n-propyl radicals with preference given to the methyl group (Tschirner et al, col.2, lines 26-28); this teaches 1-methyl vinyl acetate, 1-ethyl vinyl acetate and 1-propylvinyl acetate.

Regarding **claims 11-13**, modified Uwe et al teaches all the claim limitations as set forth above and further teaches the silicon-containing olefinic unsaturated monomer used in the invention to include vinylsilanes and (meth)acrylamide-alkylsilanes (Maruyama et al, col.3, line12- co1.6, line 28) and exemplifies vinyltrimethoxysilane (Maruyama et al co1.11, lines 55-56). Vinyltrimethoxysilane is a vinyltri (alkoxy) silane consisting of methoxy radicals.

Regarding **claim 14**, modified Uwe et al teaches all the claim limitations as set forth above and further teaches introducing the silylating agent in the range of 0.01 to 10 mol% (co1.2, lines 58-61). Though modified Uwe et al does not teach the process

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wherein 0.01 to 1.5 mol% of ethylenically unsaturated, silane-containing monomers are copolymerized, the examiner notes that in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art a *prima facie* case of obviousness exists.

Regarding **claims 15 and 16**, Uwe et al teaches a silicone release on a substrate, characterized in that the substrate is first treated with a primer, and on which a silicone release is applied (abstract). Uwe et al further exemplifies a release paper (col.1, lines 1-10).

Uwe et al does not teach a release film or paper of the instant claim.

Maruyama et al teaches a method of coating paper comprising applying to paper a silicon-containing modified polyvinyl alcohol agent or its saponification product (abstract).

Maruyama et al further teaches that the silicon-containing modified PVA should be preferably produced by saponifying a copolymer of a vinyl ester and a silicon-containing olefinic unsaturated monomer (col.7, lines 9-12) and that the content of silicon in the silicon-containing modified PVA is usually from 0.01 to 10 mol% and the degree of saponification is usually 70 to 100 mol% (col.7, line 65-co1.8, line 5).

Maruyama et al further teaches that when applied to paper, the paper coating agent of the invention greatly improves the surface properties of paper, such as surface strength and barrier properties and that the agent does not penetrate into paper but forms a firm uniform film on the surface layer of paper (col.9, lines 8-25).

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Since both inventions of Uwe et al and Maruyama et al encompass paper coating, and Uwe et al teaches polyvinyl alcohol as a primer, motivated by the taught advantages of the silicon-containing modified polyvinyl alcohol of Maruyama et al, it would have been obvious to one of ordinary skill in the art to have incorporated the silicon-containing modified polyvinyl alcohol of Maruyama et al with the polyvinyl alcohol of Uwe et al as the primer of the invention of Uwe et al by routine experimentation with an expectation of success.

Modified Uwe et al does not teach the primer comprising at least one silane-containing polyvinyl alcohol derived from fully or partly hydrolyzed vinyl ester copolymers having a degree of hydrolysis of 75 to 100 mol% obtained by free-radical polymerization of the instant claim.

Tschirner et al teaches that aqueous solutions of copolymeric polyvinyl alcohols prepared by saponification of copolymers containing vinyl acetate and 1-alkylvinyl acetate units have an unlimited shelf life at room temperature (col.2, lines 7-9) and further teaches 1-alkylvinyl alcohol/vinyl alcohol and 1-alkylvinyl acetate/vinyl acetate in a weight ratio of from 1/99 to 40/60 (col.2, lines 41-44) and that suitable alkyl groups are C₁-C₄ radicals (col.2, line 26). Motivated by the advantages of copolymeric polyvinyl alcohols formed from 1-alkylvinyl acetate/vinyl acetate as taught by Tschirner et al, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the 1-alkylvinyl acetate/vinyl acetate of Tschirner et al in the saponification reaction of modified Uwe et al (see Maruyama et al, col.7, lines 9-12), by routine experimentation with an expectation of success.

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Degree of saponification is used interchangeably with degree of hydrolysis in the art. Though modified Uwe et al does not teach the primer comprising at least one silane-containing polyvinyl alcohol derived from fully or partly hydrolyzed vinyl ester copolymers having a degree of hydrolysis of 75 to 100 mol% obtained by free-radical polymerization of (a), (b) (c) and hydrolyzing the resultant polymer of the instant claim, the examiner notes that this limitation is a product-by-process limitation, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.

Regarding **claim 17**, modified Uwe et al teaches all the claim limitations as set forth above. Concerning the primer consisting essentially of at least one silane-containing polyvinyl alcohol of the instant claim, the examiner notes that the transitional phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps and those that do not materially affect the basic and novel characteristics of the claimed invention and that if an applicant contends that additional steps or materials in the prior art are excluded by the recitation of "consisting essentially of," applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention.

Response to Arguments

5. Despite changing the grounds of rejections from those of the prior office action, the examiner notes that the concepts that form the present rejection are similar to those of prior office action, hence the examiner provides the response below.

Applicants' arguments filed on 11/05/2008 have been fully considered but they are not persuasive.

The applicants states that applicants solved the problems encountered by prior art primers by employing a polyvinyl alcohol copolymer binder also prepared from 1-alkylvinyl ester monomers as well as unsaturated silane monomers, and argue that Maruyama is directed to silane-modified polyvinyl alcohols suitable for coating paper stock for use in preparing offset printing plates and to increase paper strength; the copolymers of Maruyama are prepared by copolymerizing polyvinylacetate and an unsaturated silane monomer followed by hydrolysis to the polyvinyl alcohol, however, it is well known in the art that the silane moieties in Maruyama's polyvinyl alcohols are subject to hydrolytic condensation reactions and furthermore, the silyl methoxy groups are reactive with the hydroxyl groups of the PVA1; all these increase the viscosity of the polymers greatly and thus incorporation of such silane groups into polyvinyl alcohols is known to decrease storage stability, manifested by a marked increase in viscosity. The applicants further argue that Maruyama was first published in 1982 (Japan) and issued as U.S. Patent in 1986; the Japanese publication was 20 years before the present invention. The applicants further argue that Tschirner is not directed to polyvinylalcohols but rather, is directed to specially modified polyvinyl acetals. The

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polyvinyl acetals are prepared by acetalizing a polyvinyl alcohol copolymer derived from vinyl acetate and 1-alkylvinyl acetate. The polyvinyl acetals are useful as binders for printing inks. The applicants further argue that Tschirner is not directed to use of PVA1 as a primer, nor for any purpose whatsoever except as a precursor to polyvinyl acetals and that the only teachings one skilled in the art would glean from Tschirner is that in preparing polyvinyl acetals where low viscosity is desired, one should start with 1-alkylvinyl acetate-modified PVA1 rather than PVA1 homopolymers. The applicants further argue that Tschirner was first published in 1998, some 5 years prior to applicants' invention. The examiner disagrees.

Firstly, the rejections of the claims are based on a combination of references and the examiner notes that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references.

Furthermore, that the instant invention is directed to silicone release coating while Maruyama and Tschirner are directed to silane-modified polyvinyl alcohols suitable for coating paper stock and binders for printing inks respectively is an intended use statement and the examiner notes that statements in the preamble reciting the purpose or intended use of the claimed invention which do not result in a structural difference between the claimed invention and the prior art do not limit the claim and do not distinguish over the prior art apparatus.

As attested to by the applicants above, the silane modified polyvinyl alcohol of Maruyama has decreased storage stability, and as stated in prior office action and reiterated above, Tschirner teaches that solutions of copolymeric polyvinyl alcohols

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prepared by saponification of copolymers containing vinyl acetate and 1-alkylvinyl acetate units have an unlimited shelf life at room temperature; motivated by this disclosure, one of ordinary skill in the art would have used the combination of 1-alkylvinyl acetate and vinyl acetate as taught by Tschirner, in the preparation of the silane-modified polyvinyl alcohol of modified Uwe et al, in order to have silane-modified polyvinyl alcohol with increased shelf life at room temperature.

Concerning the present invention solving the problems of prior art by employing a polyvinyl alcohol copolymer binder also prepared from 1-alkylvinyl esters monomers as well as unsaturated silane monomers and that the silicone release coatings not only adhered well, but exhibited rapid cross-linking, as well as improved abrasion resistance and the improvement in abrasion resistance is even more marked after the primer solutions had been stored for some days, the examiner notes that all these are inherent properties of a composition, which depend on the components of the composition; since all the components of the composition of prior art (modified Uwe et al) fall within the ranges of the components of the composition of the present invention, the properties the applicants claim are exhibited by the composition of prior art (modified Uwe et al).

Concerning the age of the references, the examiner notes that the mere age of the references is not persuasive of the unobviousness of the combination of their teachings, absent evidence that, notwithstanding knowledge of the references, the art tried and failed to solve the problem.

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The applicants further argue that the problems addressed by the subject invention and those addressed by Maruyama and Tschirner are completely different. The examiner disagrees.

The examiner notes that the reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by applicant.

The applicants further argue that however, if Tschirner's discussion of avoiding polyvinyl alcohol gellation is the only isolated teaching derived from him, it is clear that any modification of PVA1 copolymers which would be expected to generate viscosity increases would be directly against his teaching and that however, Maruyama indicates that his reactive silane groups react with the PVA1 OH and thus one skilled in the art would not be motivated to add a silyl group of Maruyama to a PVA1 of Tschirner, since the expected result would be an unstable polymer which exhibits considerable viscosity increase in aqueous solution and would gel at even lesser concentrations than Tschirner's PVA1 or conventional homopolymeric PVA1. The examiner disagrees.

The combination of references does not suggest modifying the PVA1 of Tschirner as the applicants state, rather it suggests the use of vinyl acetate and 1-alkylvinyl acetate units in the preparation of the silane-modified polyvinyl alcohol of Maruyama (modified Uwe et al).

The applicants further argue that thus, not only would one skilled in the art not be motivated to add hydrolysable silane groups to Tschirner's PVA1, but moreover, the

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result is not the expected result, contrary to the holding in KSR, for example. Here, as shown by the examples and comparative examples, the silane-modified inventive PVA1's of the subject invention showed virtually no viscosity increase upon storage.

The viscosity only increased from 28.1 mPa.s to 28.3 mPa.s over two weeks. This is an increase of only 0.7%, similar Maruyama silane-modified homo-PVA1 showed a viscosity increase of 260%. The examiner disagrees.

The silane-modified PVA of Maruyama (modified Uwe et al) is different from the silane-modified homo-PVA1 of the test of the present invention. The examiner notes that the viscosity property the applicants argue is an inherent property of a composition, which depends on the components of the composition; and that since the components of the composition of modified Uwe et al all fall within the ranges of the components of the composition of the present claim, the viscosity property the applicants argue is exhibited by the composition of modified Uwe et al.

The applicants further argue that moreover, the acetalization of PVA1 of polyvinyl acetals, for reasons of economy employs concentrated PVA1 solutions. Primer coatings do not employ such concentrated solutions. The examiner disagrees.

The combination of references is not directed to the acetalization of PVA1 of polyvinyl acetals as the applicants state, rather it suggests the use of vinyl acetate and 1-alkylvinyl acetate units in the preparation of the silane-modified polyvinyl alcohol used as a primer in release films and coatings.

The applicants further argue that it is noted that Maruyama discloses that it is necessary that his product gel at the surface of the substrate to prevent penetration. Contrary to

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this, the teaching relied upon from Tschirner is to provide PVA1s which do not gel.

These objectives are diametrically opposed, and therefore un-combinable. One would not modify a Maruyama silane-modified PVA1 in a manner so as to prevent gelling which Maruyama desires. The examiner disagrees.

The teachings of Tschirner relied upon in modified Uwe does not provide PVA1s which do not gel as stated by the applicants, rather it provides for copolymeric polyvinyl alcohols having an unlimited shelf life at room temperature. Moreover, one of ordinary skill in the art would have expected the silane-modified PVA of modified Maruyama to gel upon exposure to moisture during use, based on the alkoxy, acyloxyl and/or hydroxyl functionality present in the silane-modified PVA of modified Uwe et al.

The applicants further argue that however, in addition, the present inventors have achieved surprising and unexpected results; after seven days of storage, the silicone release coat applied over the primer coat showed a much higher scratch resistance than either the silane-modified PVA1 of Maruyama or a conventional PVA1. This result is neither taught nor suggested by Maruyama, Tschirner, or combination. The applicant further argues that the difference in scratch resistance is striking and cannot be due to viscosity effects alone. The examiner disagrees.

Concerning the applicants' argument about unexpected results, the examiner notes that the arguments of counsel cannot take the place of evidence in the record; whether the unexpected results are the result of unexpectedly improved results or a property not taught by the prior art, the objective evidence of nonobviousness must be commensurate in scope with the claims which the evidence is offered to support. In

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other words, the showing of unexpected results must be reviewed to see if the results occur over the entire claimed range.

Moreover, the examiner notes that the scratch resistance the silicone release coat applied over the primer coat showed after seven days of storage the applicants argue, is an inherent property of a composition which depends on the components of the composition. Since the components of the composition of modified Uwe et al all fall within the ranges of the components of the composition of the present claim, the scratch resistance the applicant argues is exhibited by the composition of modified Uwe et al. The applicants further argue that the invention of Maruyama had been known to the public for some 20 years prior to applicants' invention, Tschirner was known to the public some five years prior to the present invention, Despite this knowledge, prior to applicants, no one had attempted to produce a primer of applicants based on these teachings. The existence of a long felt need and a solution which occurred only many years after the cited references were published is an important secondary consideration which must be considered in assessing patentability. The examiner disagrees.

Concerning the invention of Maruyama and Tschirner being known to the public for some 20 years and five years prior to applicants' invention respectively, the examiner notes that the mere age of the references is not persuasive of the unobviousness of the combination of their teachings, absent evidence that, notwithstanding knowledge of the references, the art tried and failed to solve the problem.

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Concerning the long felt need argument, the examiner notes that the failure to solve a long-felt need may be due to factors such as lack of interest or lack of appreciation of an invention's potential or marketability rather than want of technical know-how.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLATUNDE S. OJURONGBE whose telephone number is (571)270-3876. The examiner can normally be reached on Monday-Thursday, 7.15am-4.45pm, EST time, Alt Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571)272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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O.S.O.

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796